

# **Military Intelligence Support to the Division Commander: Visualizing the Battlefield**

**A Monograph  
by  
Major Ronald E. Misak  
U.S. Army**



**School of Advanced Military Studies  
United States Army Command and General Staff College  
Fort Leavenworth, Kansas**

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## ABSTRACT

Field Manual 3-0, Operations, identifies that in 2001 military forces must control the tempo of full spectrum operations in war and military operations other than war (MOOTW). Adding to the complexity of operational control is the broad range of information that technology can deliver to the division commander. Technology allows the commander to expand his ability to view the battlefield and gather inputs from subordinate commanders and staff. The growing complexity makes it vital that the commander identify what information is important and clearly and concisely portray that information to his staff.

With the increased importance of a clear and accurate vision, the G2, as head of the division intelligence effort, must ensure the commander is thoroughly grounded in the understanding of the opposition and of the environment in which the division will operate. Military intelligence doctrine provides for many different products and procedures to give the commander a baseline of information to develop his vision.

The monograph will determine if current intelligence doctrine provides the commander with the necessary visualization of the battlefield to effectively conduct battle command as outlined in FM 3-0 (DRAG). The elements of operational design are introduced as part of visualization in the visualize, describe, and direct aspects of leadership. The elements of operational design are tools to aid in designing major operations and provide a linkage of ends, ways, and means.

The monograph concludes that current intelligence doctrine does not provide the division commander the necessary visualization of the battlefield to effectively conduct battle command. The lack of clear identification of enemy centers of gravity prevents the commander from arraying the remaining elements of operational design to devise an effective operation to accomplish his endstate. Revisions of intelligence doctrine are necessary to fully support the commander and the provisions of FM 3-0.

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# CHAPTER ONE

## Introduction

What this task requires in the way of higher intellectual gifts is a sense of unity and a power of judgment raised to a marvelous pitch of vision, which easily grasps and dismisses a thousand remote possibilities which an ordinary mind would labor to identify and wear itself out in so doing.

Carl von Clausewitz, On War

### The Environment

A division commander operates in an environment of increasing complexity. A division can find itself in many forms of operations, frequently conducting these operations concurrently. A division could simultaneously be aiding U.S. agencies in fighting forest fires, preparing soldiers to conduct peace operations in Bosnia, and preparing to conduct a high intensity operation as part of a WARFIGHTER exercise.<sup>1</sup>

In the future, the requirement for rapid response to crises and conflicts around the world will clearly be much greater than the need for static, territorial defense of central Europe.<sup>2</sup> These rapid responses will vary across the spectrum of engagements. With an upward trend in the number of deployments and the increased use of U.S. forces as part of peacekeeping and relief forces, a division in army can expect to operate in a very complex environment.

Adding to the complexity is the broad range of information that technology can deliver to the division commander. Technology allows the

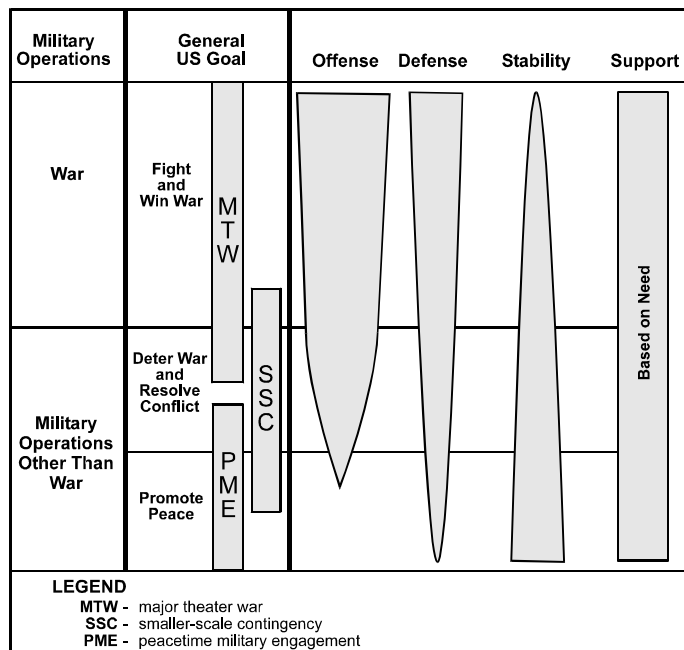
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<sup>1</sup> United States Army, *III Corps in Action: Fighting Fires*, available from <http://www.hood.army.mil/firenews/warhorse.htm> accessed 15 October 2000.

commander to expand his ability to view the battlefield and gather inputs from subordinate commanders and staff. The direction of the current revolution in military affairs points to the creation of a “system of systems” that literally encircles the earth and has global reach.<sup>3</sup> Divisions will be expected to operate effectively within this “system of systems” to reach their full capability.

This expanded capability increases the importance of the commander's role in leading the division. The commander's expanded breadth of knowledge generates an increasingly complex environment for the unit. The growing complexity makes it vital that he clearly and concisely identify what information is important and portray that information to his staff.

### Field Manual 3-0



**Figure 1 The Range of Army Operations** <sup>5</sup>

Field Manual 3-0, Operations, recognizes this increasingly complex environment and identifies that post-Gulf War forces must control the tempo of full spectrum operations in war and military operations other than war (MOOTW).<sup>4</sup> As Figure 1

<sup>2</sup> MacGregor, Douglas A. “Command and Control for Joint Strategic Action,” *Digital War, A View From the Front Lines* Novato: Presidio Press, 1999, 175.

<sup>3</sup> MacGregor, Douglas A., 176.

<sup>4</sup> United States Army, *Field Manual 3-0, Operations*, DRAG Edition (Washington, D.C.: United States Government Printing Office, 2000) v.

shows, the size and intensity of engagements within the spectrum of conflict can range from peacetime military engagement (PME) to a major theater of war. In times of war, the army must be able to conduct offensive and defensive operations. It is also expected to be able to conduct offensive, defensive, and stability operations in MOOTW that will effectively promote peace and deter war. In addition, a division must be able to conduct support operations anywhere across the spectrum of war and MOOTW.

Within this spectrum, a commander must be prepared to perform any or all of the mission essential tasks (METL) the U.S. Army's leadership has identified as vital to performing the assigned mission. The Army Mission Essential Task List (METL) in FM 3-0 consists of the following critical capabilities:

- Close with and destroy enemy forces
- Shape the security environment
- Respond promptly to crisis
- Conduct forcible entry operations
- Conduct sustained land operations
- Provide support to civil authorities
- Mobilize the Army

Broad ranges of missions are encompassed within the Army METL. Commanders may be assigned any type of mission, from assisting local government officials in the United States with disaster relief, to full-scale combat operations deployed overseas. The expanding array of a division's potential missions further adds to the complexity facing today's division commander.

Technology also plays a role in the increasing complexity facing a

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<sup>5</sup> Ibid., 1-14.

division, enhancing the commander's view of the battlefield and increasing the number of inputs from subordinate commanders and staff. Constant innovations in communication and automation systems continue to expand the view of the battlefield for the division commander.

However, the commander's enhanced ability to visualize the battlefield comes with a price. His expanded breadth of knowledge makes it vital that he clearly and concisely identify what information is important and then effectively

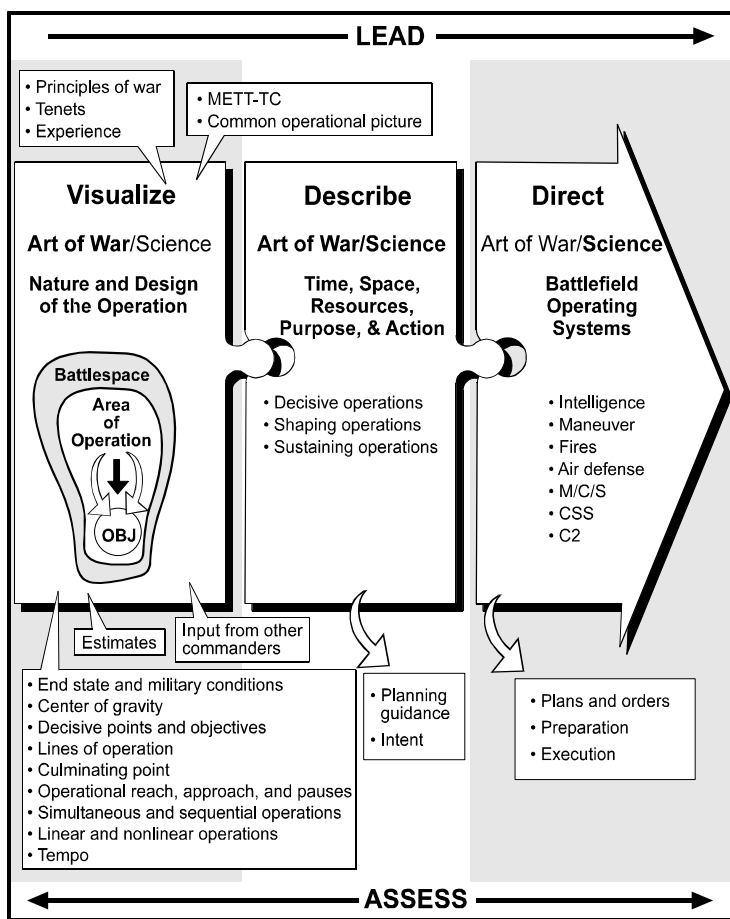


Figure 2 Visualize, Describe, Direct <sup>7</sup>

portray that information to his subordinate commanders and staff. His ability to clarify the situation rests on being able to communicate a clear vision of the environment and the assigned mission.

Visualizing is the ability to form mental pictures. For an artist, visual composition starts with the basic elements: dot, line, shape, direction, texture, dimension, scale,

and movement. <sup>6</sup> For a division commander, the elements he uses to organize

<sup>6</sup> Dondis Donis A., *A Primer of Visual Literacy* (Cambridge, MA: The MIT Press, 1973), 8.

<sup>7</sup> U.S. Army, *FM 3-0 (DRAG)*, 3-7.



his vision of the battlefield and portray it to his subordinates are shown in Figure 2: visualize, describe, and direct. Visualizing the battlefield allows the commander to determine in his mind the nature and design of an operation and then clearly portray his vision to the staff and subordinate commanders in an established, standard, and orderly format.

### Military Intelligence Support

Effective command and control (C<sup>2</sup>), equipment, facilities, intelligence and procedures provide commanders the support they require to visualize the situation, describe their vision to subordinates, and direct actions to implement their decision. As the situation becomes more complex, this support system must adapt to continue to provide the commander with the necessary information to be effective.

The mission of Army intelligence is to provide timely, relevant, accurate, and synchronized intelligence and electronic warfare (IEW) support to tactical, operational, and strategic commanders across the range of military operations. In war, IEW operations support the winning of battles and campaigns. In MOOTW, IEW operations support the promotion of peace, the resolution of conflict, and the deterrence of war. Across the spectrum, IEW operations reduce uncertainty and risk to US forces and permit the effective application of force.<sup>8</sup>

With the increased importance of a clear and accurate vision, the G2, as head of the division intelligence effort, must ensure the commander is thoroughly grounded in his understanding of the opposition and of the

environment in which he will lead his division. Current military intelligence doctrine provides for many different products and procedures designed to give the commander a baseline of information upon which to build his vision. However, with the increase in complexity and scope of military operations, does current intelligence doctrine still ensure a complete picture is effectively presented to the commander?

### Methodology

To answer the question, current and proposed military intelligence doctrine will be reviewed, focusing on identification of elements of information that are processed into intelligence and on procedures that are used for portraying intelligence so as to enhance the division commander's situational awareness. The review will examine the division G2 as the head of the division intelligence system and the job of intelligence in aiding the commander to effectively develop his elements of operational design.

The effectiveness of the division intelligence system in aiding the commander to visualize the situation will be evaluated based on the degree of support afforded by the system to the elements of operational design. As outlined in Chapter 5 of FM 3-0, the elements include:

- End State and Military Conditions
- Center of Gravity
- Decisive Points
- Lines of Operations
- Culminating Point
- Operational Reach, Approach, and Pauses
- Simultaneous and Sequential Operations

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<sup>8</sup> United States Army, *Field Manual 34-1, Intelligence and Electronic Warfare Operations* (Washington, D.C.: United States Government Printing Office, 1994), 1-1.

- Linear and Nonlinear Operations
- Tempo.

The operational elements listed have been either newly introduced in FM 3-0 or are redefined from those presented in *FM 100-5 Operations*, 1993. Each step in the doctrinal division intelligence process will be evaluated to determine how it addresses one of these elements. Due to the introduction of new terms, current doctrine may address elements of FM 3-0 without using the new terminology. For example, current doctrine uses the term 'high value targets' to designate a target vital to the enemy commander being able to accomplish his mission, while FM 3-0 defines that target as a “decisive points.”

The results of the evaluation will then be used to determine whether current intelligence doctrine provides the commander with the necessary visualization of the battlefield<sup>9</sup> to effectively conduct battle command as outlined in FM 3-0 (DRAG)

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<sup>9</sup> U.S. Army, *FM 3-0 (DRAG)*, 5-3.

## Chapter Two

### **Battle Command**

#### Command

Command is the authority a commander in military service lawfully exercises over subordinates by virtue of rank and assignment.<sup>10</sup> The division commander exercises that authority to carry out his responsibility to accomplish all missions assigned to him and to the units subordinate to him. Effective command entails use of the art of decision-making and of leading and motivating soldiers and their organizations into action that will impose the nation's will over the enemy and accomplish missions at the least expense in manpower and material.

Inserting an enemy into the situation creates a subset of command, battle command. Battle command is the exercise of command in operations against a hostile, thinking opponent.<sup>11</sup> The introduction of a hostile, creative opponent changes the issue of command for the division commander from one of simple problem solving to that of leadership in a dynamic situation. The commander must now outperform the opposition if he is to accomplish the mission. The requirement for leadership forms the basis for how a commander imposes his will on the enemy through the division's capabilities to accomplish the mission, and helps define his role in the division.

Visualizing, describing, and directing are aspects of leadership common

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<sup>10</sup> U.S. Army, *FM 3-0 (DRAG)*, 5-1.

<sup>11</sup> *Ibid.*, 5-2.

to all commanders. The fluid nature of operations, of evolving technology, and of the volume of information increases the importance of the commander's ability to visualize and describe operations to subordinates and staff.<sup>12</sup> In spite of the increased capacity for technology to electronically connect commanders and staff elements, there remains a need for a shared understanding of the expected play of events during the battle as a common point of reference. The commander's vision creates the foundation for this common view to be expressed to the staff.

To translate the commander's vision into action, the staff and subordinates must understand it. No matter what scientific, technological, and organizational advances may be fielded, the use of military power still has to be put in motion by fallible human beings.<sup>13</sup> Commanders describe their vision in succinct planning guidance and in the commander's intent, providing enough detail to focus staff planning and preparation efforts.<sup>14</sup> FM 3-0 provides the framework for the division commander to develop and transmit his guidance to his subordinates.

### Battle Command and the Division Commander

What does Battle command mean to the division commander?  
Operational success depends on the ability of operational commanders to visualize and describe complex land operations; tactical success depends on the

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<sup>12</sup> Ibid., 5-2.

<sup>13</sup> Greenfield, Kent Roberts. "Introductory Essay", *Command Decisions* The Center for Military History (Washington, D.C.: United States Government Printing Office, 1960) 2-3.

<sup>14</sup> U.S. Army, *FM 3-0 (DRAG)*, 5-2.

ability of small unit commanders to motivate and direct soldiers.<sup>15</sup> The division commander has unique responsibilities on the battlefield because of the varied roles a division can perform. The division is the largest Army organization that trains and fights as a tactical team. Largely self-sustaining, it is capable of independent operations.<sup>16</sup>

Tactics is the employment of units in combat. It includes the ordered arrangement and maneuver of units in relation to each other, to the terrain, and to the enemy in order to translate potential combat power into victorious battle and engagements.<sup>17</sup> To provide this ordered arrangement and maneuver,

**Elements of Operational Design**

- End state and military conditions
- Center of gravity
- Decisive points and objectives
- Lines of operation
- Culminating point
- Operational reach, approach, and pauses
- Simultaneous and sequential operations
- Linear and nonlinear operations
- Tempo

Figure 3 <sup>18</sup>

the division commander must translate his vision into a concise, complete picture of the flow of the battle, from start to finish, to provide his subordinate commanders and staff the concepts and focus they need to carry out his direction.

The operational design

provides a conceptual linkage of ends, ways, and means. The elements of operational design are tools to aid in designing major operations. They help commanders visualize the operation, shape their intent, and communicate their direction in a clear, concise, standardized framework understood by all military

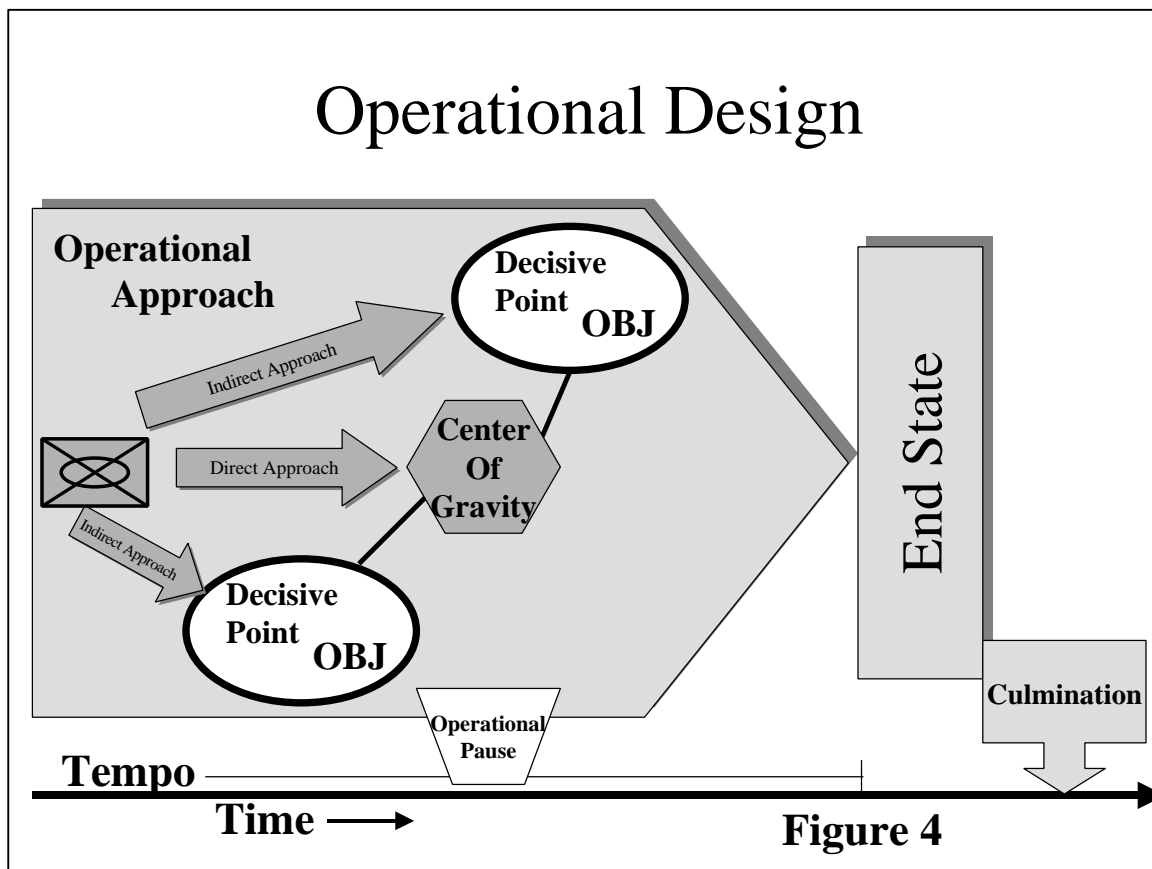
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<sup>15</sup> Ibid., 5-3.

<sup>16</sup> United States Army, *Field Manual 71-100, Division Operations* (Washington, D.C.: United States Government Printing Office, 1996), 1-1.

<sup>17</sup> U.S. Army, *FM 3-0 (DRAG)*, 2-5.

members.<sup>19</sup> The issue for the division commander is to determine which elements of operational design from FM 3-0 apply to his situation. Although FM 3-0 states in the preface that it provides operational guidance for commanders from battalion through corps, which elements of operational



design apply to the division commander?

### Elements of Operational Design

A graphical model of the elements of operational design is shown in Figure 4. Beginning with the specified tasks and mission from higher headquarters, the division commander must specify an endstate that sets the

<sup>18</sup> Ibid., 5-6.

<sup>19</sup> Ibid., 5-6.

conditions and spatial relations for the units in the division at the end of the operation. The endstate drives the rest of the commander's vision as he develops the operational design for the unit. Knowing where he has to finish lets him determine the ways and means to accomplish his mission.

Having visualized the required endstate, the division commander then determines the path to arrive there. The concept of center of gravity provides a useful tool for directing the efforts of the unit toward a common goal. The commander determines the center of gravity to focus the unit's efforts.

Clausewitz definitioned a center of gravity as the single hub of all power and movement upon which everything depends.<sup>20</sup> Though FM 3-0 allows the commander and his staff to identify several different centers of gravity for an enemy force,<sup>21</sup> a danger exists in identifying too many centers of gravity and thereby diluting unit efforts and resources. Careful determination of true centers of gravity is vital to the correct application of force.

After analysis of the center of gravity, the commander and staff determine decisive points, where the unit can attack to decisively defeat the enemy's center of gravity. The decisive points are translated into objectives for assignment to units as part of the planning process.

The identification and location of objectives and decisive points forms the basis for the operational approach the commander will take. He may attack the enemy centers of gravity directly or he may use the indirect approach by applying combat power against a series of decisive points that avoid enemy

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<sup>20</sup> Clausewitz Carl von. *On War*, Edited by Howard, Michael and Peter Paret (Princeton, New Jersey: Princeton University Press, 1976), 597.

<sup>21</sup> U.S. Army, *FM 3-0 (DRAG)*, 5-7. The use of the plural "centers of gravity" alludes to the fact a military force can have more than one characteristic, capability or location



strengths.<sup>22</sup>

The division normally operates on interior lines for offensive and defensive operations with regard to the enemy. The division framework flows supplies and replacements from a centralized location in the rear of the division area of operations. During stability and support operations, there may be no clear opponent to establish a relationship for lines of operation. When positional reference has little relevance, commanders may visualize the operation along logical lines.<sup>23</sup>

Attacks against decisive points may be spread out over time, leading to sequential operations for the division. They may also happen simultaneously, with each decisive point being attacked at the same time for maximum effect (See Figure 5)

The design of the operation must take into account time and logistics to help determine the framework. Time determines the rate of tempo necessary for the commander to accomplish his mission within the requirements of his higher headquarters. If given a “no later than” time to reach his end state, the commander can backwards plan the operation to determine his required tempo.

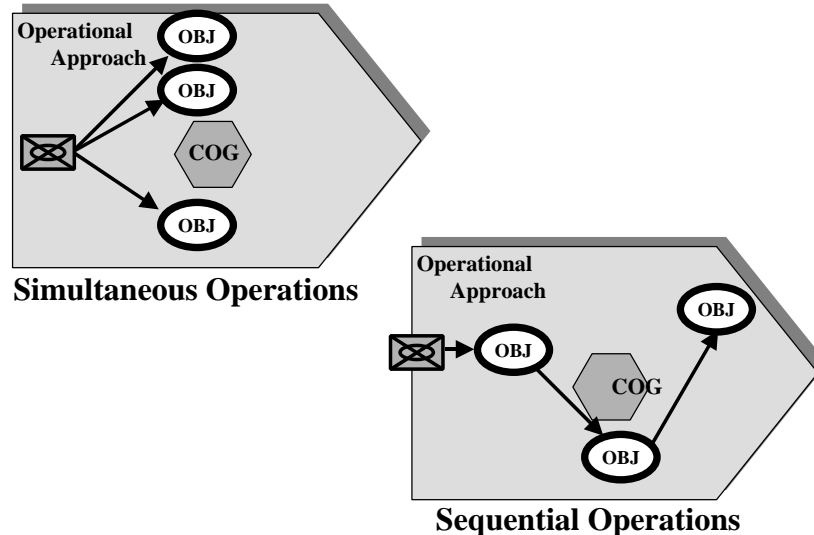
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that it derives its freedom of action, physical strength, or will to fight.

<sup>22</sup> Ibid., 5-10.

<sup>23</sup> Ibid., 5-9.

# Simultaneous and Sequential Operations



**Figure 5**

Combat power is the total means of destructive or disruptive force, or both, that a military unit or formation can apply against the adversary at a given time.<sup>24</sup> Logistics as an element of combat power plays a key part in several aspects of the overall design of an operation. Resupply requirements determine when a unit must halt, causing operational pauses that can seriously impact tempo. Logistics also plays a key part in determining the point where a unit will culminate during the battle. Culmination can occur for several reasons, including lack of combat power and logistical constraints.<sup>25</sup>

The elements of operational design shown in figure 4 provide the commander a framework to organize his vision of the operation. After

<sup>24</sup> Ibid., 4-2.

<sup>25</sup> Units can also culminate before their mission is accomplished due to geographical constraints. A force oriented attack that is restricted by operational area boundaries would culminate before successful completion if the enemy escaped to where they could not be defeated.

developing the vision, the commander must effectively share it with his subordinate commanders and staff. The commander's intent and guidance are the avenues to gain a shared vision throughout the division.

### Commander's Intent and Guidance

From their vision of the situation, commanders develop and issue planning guidance. Planning guidance may be either broad or detailed, as circumstances dictate, and conveys the essence of the commander's vision. Commanders use their experience and judgment to add depth and clarity to their planning guidance. Commanders attune the staff to the broad outline of their vision, while still permitting latitude for the staff to explore different options.<sup>26</sup> Along with his guidance, the commander issues his draft intent for the mission.

The commander's intent is a clear, concise statement of what the force must do to succeed in achieving the desired end state with respect to the enemy and to the terrain. It provides the link between the mission and the concept of operations by stating the key tasks that, along with the mission, are the basis for subordinates to exercise initiative when unanticipated opportunities arise or when the original concept of operation no longer applies.<sup>27</sup>

The introduction in FM 3-0 lays the foundation for change in the development of the commander's intent. By using a construct along the lines of figure 4, Operational Design, for the basis of his statement, the commander can communicate his vision of the battlefield in terms of the elements of operational

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<sup>26</sup> Ibid., 5-16

<sup>27</sup> United States Army, *Field Manual 101-5*, (Washington, D.C.: United States Government Printing Office, 2000), 5-9.

design. Knowing the overall framework, including decisive points and centers of gravity, subordinate commanders are then better prepared to exercise initiative.

After the commander approves the restated mission and states his intent, he provides the staff with enough additional guidance (preliminary decision) to focus staff activities in planning the operation. By stating what planning options he does or does not want them to consider, he can save time and effort by allowing the staff to concentrate on developing courses of action (COAs) that meet his intent.<sup>28</sup>

The commander's guidance emphasizes in broad terms when, where, and how he intends to mass his combat power to accomplish the mission according to his higher commander's intent. The use of a vision-based intent employing the elements of operational design provides the staff with the picture of not only where to mass combat power, but also of the overall tempo and design of the operation.

The commander forms his vision, the key to the entire operational design structure, early in the military decision-making process. The information he uses to form his vision comes from two sources: his own commander's estimate and the staff's estimate communicated to him through the mission analysis briefing.

Military intelligence provides the bulk of the mission analysis briefing. The information and intelligence presented establish the framework for the commander's vision and provide the basis for the commander's guidance to the intelligence battlefield operating system (BOS). Chapter three examines the doctrinal support from military intelligence to the division commander.

## Chapter Three

### **Intelligence Doctrine**

#### Intelligence Support to Military Operations

The mission of Army intelligence is to provide timely, relevant, accurate, and synchronized IEW support to tactical, operational, and strategic commanders across the range of military operations. In war, IEW operations support the winning of battles and campaigns. In OOTW, IEW operations support the promotion of peace, the resolution of conflict, and the deterrence of war. These operations reduce uncertainty and risk to US Forces and permit the effective application of force.<sup>29</sup>

Military Intelligence accomplishes its mission through six primary tasks, which generate intelligence synchronized to support the commander's mission and intelligence requirements. These six tasks are:

- Provide Indications and Warnings
- Perform Intelligence Preparation of the Battlefield (IPB)
- Perform Situation Development
- Perform Target Development and support to targeting
- Support Force Protection
- Perform Battle Damage Assessment (BDA)<sup>30</sup>

Of these six functions, IPB provides the basis for the commander to develop his vision.

IPB is a systematic, continuous process of analyzing the threat and environment in a specific geographic area. It is designed to support staff

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<sup>28</sup> U.S. Army, *Field Manual 101-5*, 5-10.

<sup>29</sup> U.S. Army, *FM 34-1, Intelligence and Electronic Warfare Operations* (Washington, D.C.: United States Government Printing Office, 1994), 1-1

estimates and military decision-making.<sup>31</sup> The G2 is responsible for facilitating the division IPB effort, but he and his staff cannot provide all the IPB the unit requires. Each staff section should prepare detailed IPB products tailored for its functional area.<sup>32</sup>

The commander uses IPB to understand the battlefield and the options it presents to friendly and threat forces.<sup>33</sup> Applying the IPB process helps the commander selectively apply and maximize his combat power at critical points in time and space on the battlefield by: determining the threat's likely COA, describing the operating environment and defining the effects of the environment on the unit.<sup>34</sup> The commander is able to focus his forces through of his understanding of the geometry of the battle. He is aware of the factors of time, space, mass, and purpose of both his and the enemy's forces in the upcoming battle. The IPB process develops in the commander's mind the capabilities and potential courses of action available to the thinking opponent necessary for the commander to exercise battle command. The process consists of four steps: defining the battlefield environment, describing the battlefield effects, evaluating the threat, and determining threat COAs.<sup>35</sup>

The first step in the IPB process is to define the battlefield environment. During this step the G2 determines the limits of the area of interest (AI) and identifies the characteristics of the battlefield which influence friendly and

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<sup>30</sup> Ibid., 2-8.

<sup>31</sup> United States Army, *FM 34-130, Intelligence Preparation of the Battlefield* (Washington, D.C.: United States Government Printing Office, 1994), 1-1.

<sup>32</sup> Ibid., 1-4.

<sup>33</sup> U.S. Army, *FM 34-1*, 2-9.

<sup>34</sup> U.S. Army, *FM 34-130*, 1-1.

<sup>35</sup> U.S. Army, *FM 34-1*, 2-9.

threat operations in the AI.<sup>36</sup> This step focuses both the commander and the staff on the area of concentration for mission analysis, allowing the proper materials to be gathered for a complete analysis of the area.

After defining the battlefield environment, the next step is to describe the battlefield's effects within the area. There are two specific steps in this stage of the IPB process. The first is to analyze the battlefield environment and the second is to describe the battlefield's effects on threat and friendly capabilities and broad COAs based on the analysis.<sup>37</sup> Describing the battlefield effects allows the commander to see how the battlefield environment will affect both enemy and friendly operations.

To fully analyze the battlefield environment, the terrain and weather must be examined along with other characteristics of the battlefield such as transportation or communication systems. The effects of the terrain are determined through two steps: 1) analyze the military aspects of the terrain, and 2) evaluate terrain effects on military operations.<sup>38</sup> Terrain analysis is not the end product of IPB, but rather the means to determine which friendly COAs can best exploit the opportunities the terrain provides and how the terrain affects the COAs available to the enemy.

By describing battlefield effects on threat and friendly capabilities, and outlining broad COAs based on the analysis of the terrain and weather, the G2 presents all environmental effects on the COAs available to both the friendly and enemy forces, rather than factors that lead to conclusions. By focusing on effects, the G2 provides the commander with information vital to the upcoming

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<sup>36</sup> U.S. Army, *FM 34-130*, 1-1.

<sup>37</sup> *Ibid.*, 2-8.

operation, rather than a laundry list of details about the area of operations.

The commander is spared having to pick and choose what details are important to the mission.

Step three in the IPB process is evaluating the threat. This step determines the threat force capabilities and the doctrinal principles and tactics, techniques, and procedures threat forces prefer to employ.<sup>39</sup> During this step accurate models of the enemy are developed to show how he normally operates.

A threat model should include:

- Standard graphical control measures
- Description of typical tasks for subordinate units
- Evaluation of how well the threat force is trained
- Employment considerations
- Discussion of typical contingencies, sequels, failure options, and wildcard variations
- Evaluation of the threat's strengths, weaknesses, and vulnerabilities, including an evaluation of typical high value targets (HVT)<sup>40</sup>

At this point the enemy capabilities are portrayed in broad terms to guide further development. Within these capabilities, assets that the commander requires for the successful completion of the mission are identified as HVTs.<sup>41</sup> After HVTs have been identified as a whole, they are rank ordered with regard to their relative worth to the enemy's operations.<sup>42</sup>

Once the enemy has been evaluated for capabilities, the last step of IPB is to identify and develop likely threat COAs that will influence accomplishment of the friendly mission. The G2 objective here is to replicate the set of COAs the enemy commander and staff are considering, including all COAs that will

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<sup>38</sup> Ibid., 2-10.

<sup>39</sup> Ibid., 2-29.

<sup>40</sup> Ibid., 2-29.

<sup>41</sup> Ibid., 2-33.



influence the friendly command's mission, and identify those areas and activities that will discern which COA the threat commander has chosen.<sup>43</sup> By accomplishing this step, the G2 builds the products he will use to portray to the commander the thinking enemy he is fighting against.

Enemy COA development begins with identifying the enemy's likely objectives and desired end state. The G2 starts with the enemy command at least one level above his own and identifies likely objectives and the desired end state. The process is continued down two levels below the division, to enemy battalion level.<sup>44</sup> These objectives and end state are used to determine the full set of COAs.

To develop the full range of enemy COAs while eliminating those that don't affect the division, five criteria are used: suitability, feasibility, acceptability, uniqueness, and consistency with doctrine.<sup>45</sup>

Each developed enemy COA has three parts: a situation template, a description of the COA and options, and a listing of HVTs.<sup>46</sup> At this point, military intelligence doctrine references FM 101-5, *Staff Organization and Operations*, to provide the discussion of constructing COAs. According to FM 101-5, each COA must have a statement that clearly portrays how the unit will accomplish the mission and a sketch that provides the maneuver aspects of the

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<sup>42</sup> Ibid., 2-33.

<sup>43</sup> Ibid., 2-39.

<sup>44</sup> Ibid., 2-40.

<sup>45</sup> Ibid., 2-42. Unlike friendly course of action development, which uses only four criteria for COA development, feasibility, acceptability, suitability, and distinguishability, the G2 is required by doctrine to ensure the enemy COAs are consistent with the enemy's doctrine. This will become more difficult as real-world and training center enemies become capability-based versus doctrine based.

<sup>46</sup> Ibid., 2-45.

COA.<sup>47</sup> The statement provides a frame of reference for constructing the description of the COA required by FM 34-130. However the requirements for detail in the situation template are much more extensive than the requirements for a COA sketch.

The situation template is a depiction of assumed threat disposition, based on threat doctrine and the effects of the battlefield.<sup>48</sup> It is a doctrinal template that is adjusted based on the G2's evaluation of the battlefield's effects on the enemy's COA. Situation templates typically show enemy units two levels of command below the friendly force and use time phase lines to depict enemy movement during the COA.

The final component of a developed threat COA is a listing of HVTs, assets that the threat commander requires for the successful completion of a specific COA.<sup>49</sup> On the situation template, any areas where HVTs must appear or be employed to make the operation successful are noted. The HVTs go forward with the enemy COA to provide the foundation for developing friendly high payoff targets (HPT) to support the friendly COAs developed against the enemy COA by developing a high-payoff target list. HPTs are targets whose loss to the threat will contribute to the success of the friendly COA.<sup>50</sup>

After the set of enemy COAs have been developed, it is necessary to prioritize. To prioritize each COA:

- Analyze each COA to identify its strengths and weaknesses, centers of

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<sup>47</sup> U.S. Army, *FM 101-5*, 5-14. On pages 5-13 and 5-14, FM 101-5 lays out the included elements for a COA statement and sketch. Both address the mainly the maneuver aspects of an operation and don't fully include the remaining battlefield operating systems in the statement or sketch.

<sup>48</sup> U.S. Army, *FM 34-130*, Glossary-10.

<sup>49</sup> Ibid., Glossary-7.

<sup>50</sup> Ibid., Glossary-7.

- gravity, and decisive points.
- Evaluate how well each COA meets the criteria of suitability, feasibility, acceptability, and consistency with doctrine.
- Evaluate how well each COA takes advantage of the battlefield environment.
- Compare each COA to the others and determine if the threat is more likely to prefer one over the others.
- Consider the possibility that the threat may choose the second or third “best” COA while attempting a deception operation portraying acceptance of the “best” COA
- Analyze the threat’s recent activity to determine if there are indications that one COA is already being adopted.<sup>51</sup>

The enemy COAs are listed in order of relative probability of adoption. Any vulnerabilities identified in the enemy COAs are identified.

The completed enemy COAs are the final product of the initial IPB. These COAs will continue to be updated as more intelligence is gathered during the operation. Once the initial IPB is complete, the information must be presented to the commander to have any significance.

### Mission Analysis

Mission analysis occurs as step two of the military decision-making process.<sup>52</sup> Mission analysis is critical to ensure thorough understanding of the task and to direct subsequent planning. As a result of mission analysis, the tactical problem is defined and the process begun to determine feasible

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<sup>51</sup> Ibid., 2-44. This is first the mention of center of gravity and decisive points in FM 34-130. Center of Gravity is defined by FM 34-130 as the hub of all power and movement upon which everything depends. That characteristic, capability, or location from which enemy and friendly forces derive their freedom of action, physical strength, or the will to fight. Decisive Point is defined as a point, usually geographical in nature, that, when retained, provides a commander with a marked advantage over his opponent. Decisive points could also include other physical elements such as enemy formation, command posts and communications nodes.

<sup>52</sup> U.S. Army, *FM 101-5*, 5-3. The six steps of the MDMP process are 1) Receipt of Mission, 2) Mission Analysis, 3) course of Action Development, 4) Course of Action Analysis, 5) Course of Action Comparison, 6) Course of Action Approval, and 7) Orders Production.

solutions. It provides the commander the opportunity to “see himself, see the battlefield, and see the enemy” and allows him to begin his battlefield visualization.<sup>53</sup>

The staff briefs the commander on mission analysis following the general guideline from FM 101-5, p. 5.8. The G2 or his representative presents the initial IPB products as part of the brief. The description of the battlefield’s effects identifies constraints on potential friendly COAs and may reveal implied missions. Enemy capabilities and vulnerabilities identified during evaluation of the threat allow the commander and staff to make assumptions about the relative capabilities of the friendly command. This allows the enemy COAs to provide a basis for formulating potential friendly COAs and completes the intelligence estimate. The commander uses IPB products to assess the facts about the battle space and to understand how friendly and threat forces will interact on the battlefield.<sup>54</sup>

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<sup>53</sup> Ibid., 5-5.

<sup>54</sup> U.S. Army, *FM 34-1*, 2-18.

## Chapter Four

### **Analysis**

To determine the effectiveness of the division intelligence system to aid the commander in visualization, the evaluation will be based on the degree of support afforded to the elements of operational design. To review, as outlined in Chapter 5 of FM 3-0 those elements include:

- End State and Military Conditions
- Center of Gravity
- Decisive Points
- Lines of Operations
- Culminating Point
- Operational Reach, Approach, and Pauses
- Simultaneous and Sequential Operations
- Linear and Nonlinear Operations
- Tempo.

**Endstate** The conditions that, when achieved, accomplish the mission.<sup>55</sup>

The endstate defines for the commander a list of conditions to be achieved to consider his mission accomplished. The commander needs the staff to help him answer the question, “Can we achieve the endstate?” Through mission analysis, the staff begins the process by defining the tactical problem and determining feasible solutions. The commander must be able to visualize and describe to the staff and subordinate commanders the path he intends to follow to reach the endstate.

The commander arranges the elements of operational design in his mind to help him determine the direction the mission will take. These elements allow

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<sup>55</sup> U.S. Army, *FM 3-0 (DRAG)*, 5-6.

the CDR to visualize his path to the endstate within the constraints of time, space, and resources. The G2 provides the commander with a view of the enemy, their capabilities, vulnerabilities and courses of action taking into account the effects of the battlefield.

By showing what the enemy looks like and can accomplish to the commander, the G2 allows the commander to develop a realistic vision taking into account the enemy. The four steps of IPB combine to give the commander an accurate view of the battlefield, allowing him to determine an accurate endstate for the division that accomplishes the mission.

**Center of Gravity** Those characteristics, capabilities, or localities from which a military force derives its freedom of action, physical strength, or will to fight.<sup>56</sup>

The center of gravity is a vital analytical tool in the design of campaigns and major operations. Once identified, it becomes the focus of the commander's intent and operational design.<sup>57</sup> More important, it forms the basis of the remaining elements of operational design. What is vital is a common understanding between the commander and the staff on what a center of gravity is and how it will be used to focus the command. Army doctrine addresses multiple centers of gravity vice a single center of gravity.

The challenge for the G2 is to help the commander develop his vision by presenting the enemy in a manner that shows how the enemy will interact with the division. Currently, the enemy is evaluated on the objectives of enemy units two levels higher and on capabilities and vulnerabilities. The IPB process addresses center of gravity only as criteria for prioritizing COAs. There is no

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<sup>56</sup> Ibid., 5-6

<sup>57</sup> Ibid., 5-7.

coherent identification of center of gravity for the commander to concentrate his combat power in intelligence doctrine.

The lack of identification of center of gravity handicaps the commander in his view of how the enemy will fight, what's important to the enemy, and how to best defeat the enemy and his plan. The remaining items of operational design are handicapped because of a lack of identification of centers of gravity. Lack of identification of COGs prevents coordinated and simultaneous actions on the enemy, piecemealing efforts against peripheral targets rather than focusing on what is important to the enemy.

**Decisive Points** A geographic place, specific key event, or enabling system that allows commanders to gain a marked advantage over an enemy and greatly influence the outcome of an attack.<sup>58</sup>

Vulnerabilities are identified for the commander on where the enemy is susceptible to attack by the division. Enemy vulnerabilities are listed from the effects of peculiarities and weaknesses that result in opportunities that are exploitable at own, higher, or lower levels of command.<sup>59</sup> From this identification, the commander can direct which vulnerabilities are developed into COAs as part of his guidance to the staff. Decisive points are not centers of gravity, but are identified as keys to attacking or protecting centers of gravity. Once identified and selected for action, decisive points become objectives.<sup>60</sup> Each COA focuses on hitting the enemy in a different set of vulnerabilities to bring about mission accomplishment.

As laid out in current intelligence doctrine, there is no focusing or attempt to link vulnerabilities together to overwhelm the enemy at a given place

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<sup>58</sup> Ibid., 5-7.

<sup>59</sup> U.S. Army, *FM 34-3*, A-15.

and time. Decisive points, like centers of gravity, are introduced to analyze enemy courses of action. Unlike decisive points, which are derived from a center of gravity, vulnerabilities are identified places the enemy is susceptible to our actions and not necessarily linked together to provide the opportunity for an overwhelming victory. This lack of linkage is the fundamental difference between vulnerabilities and decisive points.

**Lines of Operation** The directional orientation of the force in time and space in relation to the enemy. They connect the force with its base of operations and its objectives.<sup>61</sup>

The division commander functions within an area of operations (AO) assigned him by a higher headquarters. The AO is analyzed as part of the IPB step for defining the battlefield environment. If the division has not been assigned an AO, the G2 coordinates with the G3 to develop a recommendation for the commander on its limits.<sup>62</sup>

The steps of IPB currently provide the division commander with an acceptable orientation to the lines of operation of the battlefield. The IPB analysis identifies the battlefield's environment, defines its effects, and arrays the battlefield in dimensions of time and space for the commander.

**Culminating Point** In the offense, the *culminating point* is that point in time and space where the attacker's effective combat power no longer exceeds the defender's or the attacker's momentum is no longer sustainable, or both. The defensive culminating point marks that instant at which the defender must withdraw to preserve the force.<sup>63</sup>

The issue of a culminating point for the division is addressed at the same time as determining the endstate for the division. Mission analysis identifies constraints on the division that would force the unit to culminate prior to

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<sup>60</sup> U.S. Army, *FM 3-0 (DRAG)*, 5-7.

<sup>61</sup> *Ibid.*, 5-8.

<sup>62</sup> U.S. Army, *FM 34-130*, p. 1-2.

<sup>63</sup> U.S. Army, *FM 3-0 (DRAG)*, 5-10.



accomplishing the mission. These factors form the basis for the commander's guidance for COA development to accomplish the mission within the abilities of the division.

The identification of a culminating point for the enemy is not directly addressed in intelligence doctrine. It is indirectly addressed during the establishment of criteria for enemy COAs as part of determining enemy courses of action. Feasibility addresses whether or not the enemy has the resources and physical means to accomplish the mission. If it appears the enemy doesn't have the necessary resources, all actions must be considered to set the conditions for the enemy's success.<sup>64</sup> Considering all possible enemy actions gives the division commander a full set of enemy COAs to develop his vision.

**Operational Reach, Approach, and Pauses** *Operational reach* is the distance over which military power can be employed decisively. *Operational approach* is the manner in which a commander attacks the enemy center of gravity. An *operational pause* is a deliberate halt taken to extend operational reach or prevent culmination.<sup>65</sup>

IPB lays out the terrain analysis and enemy analysis to help the commander with his time and space framework of the battlefield. This basic understanding is important to the commander as he looks across the battlefield operating systems (BOS) for the division to determine whether or not his unit has the operational reach to achieve the desired endstate.

IPB analysis should enable the commander to determine his operational approach, how he chooses to attack the enemy. Unfortunately, the enemy's center of gravity isn't identified for the commander during the IPB process.

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<sup>64</sup> U.S. Army, *FM 34-130*, 2-42.

<sup>65</sup> U.S. Army, *FM 3-0 (DRAG)*, 5-11.

**Simultaneous and Sequential Operations** Army forces concurrently engage as many decisive points as possible. Simultaneity exploits depth and agility to overwhelm enemy forces. Sequential operations achieve the end state by phases. Commanders concentrate combat power at successive points over time, achieving the mission in a controlled series of steps.<sup>66</sup>

The lack of identification of centers of gravity and the linkage with decisive points hampers the commander when he visualizes the sequencing of operations during his mission. The lack of linkage as he develops objectives from identified vulnerabilities and decisive points prevents him from synchronizing operations together to achieve the maximum effect. Not being able to focus effectively on the enemy, the commander is driven to a sequential organization of objectives for sake of phasing, going for organizational simplicity instead of maximum effect.

**Nonlinear and Linear Operations** In *nonlinear operations*, maneuver units may operate in noncontiguous areas throughout the AO. In *linear operations*, maneuver units normally operate in contiguous AOs.<sup>67</sup>

As IPB defines the battlefield environment, the linear or nonlinear nature of the battlefield will be evident from the area assigned to the division. There is a greater chance for nonlinear operations during stability and support missions because the lack of an enemy allows the spreading out of units for maximum effect with reduced risk.

**Tempo** The rate of military action.<sup>68</sup>

The current IPB steps give the commander a good layout of the effects of terrain, weather and enemy forces. With this understanding and the conditions that make up his endstate, the commander can effectively get a feel for the required tempo for the mission.

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<sup>66</sup> Ibid., 5-11.

<sup>67</sup> Ibid., 5-11.,

## **Recommendations**

Current doctrine fails to address the concept of center of gravity and identification of decisive points and objectives to attack the center of gravity adequately. In addition, it fails to address the enemy in terms of the elements of operational design, forcing the commander to apply two different standards of design for operations to evaluate his forces as compared to the enemy.

To prevent this, the doctrine on development of enemy courses of action should be modified to portray the enemy in terms of the elements of operational design. Specifically, the final step of IPB (determine threat courses of action) could be modified to follow the following steps:

1. Determine the enemy's likely objectives and desired endstate
2. Identify Centers of Gravity
3. Determine Decisive Points and High Value Targets
4. Identify enemy Lines of Operation
5. Develop each COA in the amount of detail time allows
6. Identify initial collection requirements

Step one remains identification of the threat's likely objectives and desired end state. The identification of an endstate shows what conditions the enemy will try to set to accomplish his mission and puts the actions he will be willing to take into the perspective of what he is trying to accomplish. The endstate can be stated as the task and purpose of the enemy, showing the mission assigned and the reason behind it.

Step two becomes the identification of centers of gravity for the enemy force. These centers of gravity become the basis for developing enemy course of action that take advantage of the strengths of the enemy force while protecting his vulnerabilities. All of the BOS systems of the enemy are still considered to

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<sup>68</sup> Ibid., 5-12.

fully develop the COA, but the attention is focused on the centers of gravity to better appreciate the possible and probable enemy actions.

From the centers of gravity, enemy decisive points are determined in step three. These are refined as the commander shapes the friendly COAs with his guidance to the staff. Enemy vulnerabilities are determined in relation to these events on the battlefield and HVTs are developed to target these vulnerabilities.

The identification of decisive points allows the development of enemy COAs by determining in step four the various lines of operation to attack various groups of decisive points in space and time. A full range of enemy COAs can better be developed through the identification of elements of operational design from the enemy's perspective because of the focus on what is important to the enemy (center of gravity), how he intends to use these centers of gravity (decisive points) and what he has to accomplish to be successful (endstate).

The remaining two steps stay the same. Time available will dictate the number of enemy COAs level of detail possible in their development. Initial collection requirements can be developed against HVTs where they are expected to appear by focusing on the decisive points of the battle. These HVTs then become indicators of enemy COAs by their appearance on the battlefield.

## Chapter Five

### **Conclusion**

Current intelligence doctrine does not provide the commander the necessary visualization of the battlefield to effectively conduct battle command. The lack of clear identification of enemy centers of gravity prevents the commander from arraying the remaining elements of operational design to design an effective operation to accomplish his endstate.

The concept of centers of gravity is the foundation for the elements of operational design. It focuses the commander on key enemy capabilities. To effectively use his division to accomplish the mission, the commander must provide a nucleus for all BOS elements to attack to overwhelm the enemy. An identified center of gravity provides the focal point for the division, allowing the commander to outline his operation using the elements of operational design.

Without this focal point, the commander is unable to effectively organize an operation. The inability to identify decisive points linked to a center of gravity prevents the commander from identifying a line of operations that produces simultaneity against key points. Without simultaneity, the operation defaults to a linear, sequential operation allowing the enemy to defeat the division piecemeal.

Intelligence doctrine does provide a clear picture of the dimensions of the battlefield and on the effects of terrain and weather on both friendly and enemy courses of action through the first two steps of IPB: 1) Define the battlefield environment, and 2) Describe the battlefield's effects. By including an entire step on describing the effects of weather and terrain on an operation,

intelligence doctrine ensures the commander will “see the terrain” and its influence.

Intelligence doctrine lacks clear steps to distinguish how the opposing forces will interact on the battlefield because of the lack of identification of centers of gravity. Because centers of gravity are the source of power and movement, their protection and attack are the key pieces of an operation and need to be identified for the commander as part of military intelligence doctrine.

## Appendix

### Excerpted from FM 3-0, Chapter Five, Battle Command, DRAG

Edition.<sup>69</sup>

#### The Elements of Operational Design

5-1. A major operation begins with a design—an idea that guides the conduct (planning, preparation, execution, and assessment) of the operation. The operational design provides a conceptual linkage of ends, ways, and means. The elements of operational design are tools to aid designing major operations. They help commanders visualize the operation and shape their intent.

5-2. The elements of operational design are most useful in visualizing major operations. They help clarify and refine the vision of operational-level commanders by providing a framework for them to describe operations in terms of task and purpose. They help commanders understand the complex combinations of combat power involved. However, their usefulness and applicability diminishes at each lower echelon. For example, senior tactical commanders must translate the operational commander's operational reach and culminating point into a limit of advance for ground forces. Decisive points become geographic or force-oriented objectives. Senior tactical commanders normally consider end state, decisive points and objectives, culminating point, simultaneous and sequential operations, linear and nonlinear operations, and tempo.

#### Elements of Operational Design

- End state and military conditions
- Center of gravity
- Decisive points and objectives
- Lines of operation
- Culminating point
- Operational reach, approach, and pauses
- Simultaneous and sequential operations
- Linear and nonlinear operations
- Tempo

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<sup>69</sup> The following pages of FM 3-0, Operations, are provided to show the elements of design identified in the DRAG edition. Changes could occur in these elements as the FM develops into the final edition.

However, their subordinates at the lowest tactical echelons may only consider objectives.

**5-3. End State and Military Conditions.** At the strategic level, the end state is what the National Command Authorities want the situation to be when operations conclude? both those where the military is the primary instrument of national power employed and those where it supports other instruments. It marks the point when military force is no longer the principal strategic means. **At the operational and tactical levels, the end state is the conditions that, when achieved, accomplish the mission. At the operational level, these conditions attain the aims set for the campaign or operation.**

5-4. JFCs establish the end state for campaigns or joint major operations and set the military conditions necessary to accomplish them. Army operations at the theater level focus on achieving the military conditions on land necessary to achieve the JFC's objectives and end state. In situations where military force is employed with nonmilitary means, commanders designate measures of effectiveness to focus military action. In many operations—particularly short-notice, smaller-scale contingencies—the end state and supporting military conditions may be poorly defined or entirely absent. In other operations, the end state may be vague or evolving. Therefore, commanders at all levels monitor and assess progress toward the end state. Operational commanders continuously assess the major operation and campaign objectives against measures of effectiveness and the strategic end state.

**5-5. Center of Gravity.** Centers of gravity are those characteristics, capabilities, or localities from which a military force derives its freedom of action, physical strength, or will to fight. Destruction or neutralization of the enemy center of gravity is the most direct path to victory. The enemy will recognize and shield his center of gravity. Therefore, a direct approach may be costly and sometimes futile. Commanders examine many approaches, direct and indirect, to the enemy center of gravity.

5-6. The center of gravity is a vital analytical tool in the design of campaigns and major operations. Once identified, it becomes the focus of the commander's intent and operational design. Senior commanders describe the center of gravity in military terms, such as objectives and missions.

5-7. Commanders not only consider the enemy center of gravity, but also identify and protect their own center of gravity. During the Gulf War, for example, US Central Command identified the coalition itself as the friendly center of gravity. The combatant commander took



measures to protect it, including deployment of theater missile defense systems.

**5-8. Decisive Points and Objectives.** A *decisive point* is a geographic place, specific key event, or enabling system that allows commanders to gain a marked advantage over an enemy and greatly influence the outcome of an attack. Decisive points are not centers of gravity; they are keys to attacking or protecting them. Normally, a situation presents more decisive points than the force can control, destroy, or neutralize with available resources. Part of operational art consists of selecting the decisive points that will most quickly and efficiently overcome the enemy center of gravity. Decisive points shape operational design and allow commanders to select objectives that are clearly defined, decisive, and attainable.

5-9. Some decisive points are geographic, for example, a port facility, transportation network or node, or base of operations. Other physical decisive points include elements of an enemy force, such as units, command posts, fire support units capable of delivering weapons of mass destruction (WMD), or important communications sites. Events, such as commitment of the enemy operational reserve, may also be decisive points. Once identified and selected for action, decisive points become objectives.

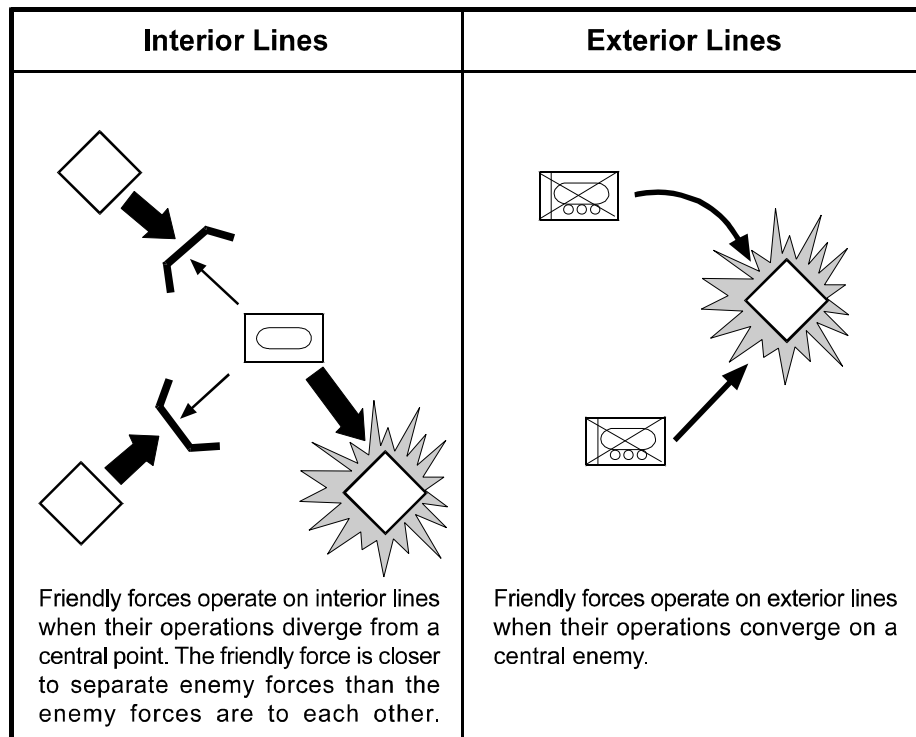
5-10. Decisive points may have a different character in support missions and stability operations. During hurricane relief efforts in Florida, for example, the Joint Task Force Andrew commander identified the reopening of public schools as a decisive point. This decisive point was physical in nature, but its real value was psychological. Reopening schools signaled to residents that they were on their way to recovery.

**5-11. Lines of Operations.** *Lines of operations* define the directional orientation of the force in time and space in relation to the enemy. They connect the force with its base of operations and its objectives. In geographic terms, lines of operations connect a series of decisive points that lead to control of the objective or defeat of the enemy force.

5-12. An operation may have single or multiple lines of operation. A single line of operations concentrates forces and simplifies planning. Multiple lines of operations increase flexibility and create several opportunities for success. Multiple lines of operations make it difficult for an enemy to determine the friendly objectives and force him to disperse resources against several possible threats. Each potential option further complicates the enemy's situation and stresses his C2 system. The strategic responsiveness and tactical agility of Army

forces create opportunities for simultaneous operations along multiple lines of operations.

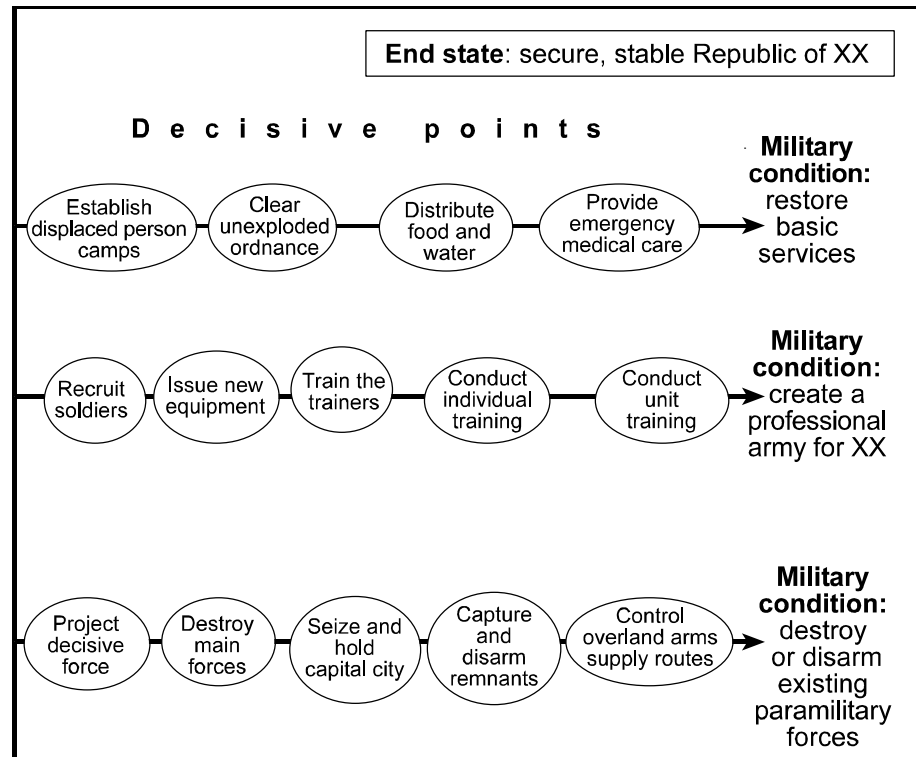
5-13. Lines of operations may be either interior or exterior (see Figure 5-2). **A force operates on interior lines when its operations diverge from a central point.** With interior lines, friendly forces are closer to separate enemy forces than the enemy forces are to each other. Interior lines allow a weaker force to mass combat power against a portion of the enemy force by shifting resources more



rapidly than the enemy. **A force operates on exterior lines when its operations converge on the enemy.** Operations on exterior lines offer the opportunity to encircle and annihilate a weaker or less mobile enemy; however, they require stronger or more mobile forces.

5-14. The relevance of interior and exterior lines depends on the relationship of time and distance between the opposing forces. An enemy force may have interior lines with respect to the friendly force; however, that advantage disappears if the friendly force is more agile and operates at a higher tempo. Conversely, if a smaller friendly force maneuvers to a position between larger but less agile enemy forces, the friendly force may defeat them in detail before they can react effectively.

5-15. When positional reference to an enemy or adversary has little relevance, commanders may visualize the operation along *logical lines* (see Figure 5-3). This situation is common in stability operations and support operations. Commanders link multiple objectives and actions with the logic of purpose—cause and effect. In a linkage between objectives and forces, only the logical linkage of lines of operations may be evident. Multiple and complementary lines of operations work through a series of objectives. Commanders synchronize activities



**Figure 5-3. Logical Lines of Operations**

along multiple lines of operation to achieve the desired end state. Logical lines of operations also help commanders visualize how military means can support nonmilitary instruments of national power.

**5-16. Culminating Point.** Culminating point has both operational and tactical relevance. **In the offense, the *culminating point* is that point in time and space where the attacker's effective combat power no longer exceeds the defender's or the attacker's momentum is no longer sustainable, or both.** Beyond their culminating point, attackers risk counterattack and catastrophic defeat and continue the offense only at great peril. Defending forces reach their culminating point when they can no longer defend successfully or counterattack to restore the cohesion of the defense. **The defensive culminating point marks that instant at**

**which the defender must withdraw to preserve the force.** Commanders tailor their information requirements to anticipate culmination early enough to either avoid it or, if avoiding it is not possible, place the force in the strongest possible posture.

5-17. In operations where stability or support predominate, culmination may result from the erosion of national will, decline of popular support, questions concerning legitimacy or restraint, or lapses in protection leading to excessive casualties. Operational culmination in a stability or support mission usually occurs when the force is spread too thinly to control the situation, from a lack of resources, or from the inability to supply resources when needed. Then small failures may cascade into larger defeats, shocks in the political arena, or inability to provide the necessary support.

5-18. **Operational Reach, Approach, and Pauses.** Good operational design balances operational reach, operational approach, and operational pauses to ensure the force achieves its objectives before it culminates. Commanders carefully assess the physical and psychological condition of friendly and enemy forces, anticipate culmination, and plan operational pauses if necessary. They commit the required forces and conduct operational risk assessments. Commanders aim to extend operational reach while avoiding culmination and operational pauses.

5-19. **Operational reach is the distance over which military power can be employed decisively.** It is a tether. Operational reach varies based on the situation. Combat power, sustainment capabilities, and the geography surrounding and separating friendly and enemy forces all influence it. Army forces extend their operational reach by locating forces, reserves, bases, and support forward; by increasing the range of weapons systems; through supply discipline; and by improving lines of communications (LOCs).

5-20. **Operational approach is the manner in which a commander attacks the enemy center of gravity. The direct approach applies combat power directly against the enemy center of gravity or the enemy's principal strength. The indirect approach attacks the enemy center of gravity by applying combat power against a series of decisive points that avoid enemy strengths.** When possible, commanders choose an indirect approach: they maneuver to avoid enemy strengths and degrade enemy capabilities; they refuse combat when the situation is unfavorable or the outcome does not significantly affect the operation. An effective operational approach, whether direct or indirect, focuses symmetric and asymmetric effects on the objective. By a shrewd operational approach, careful integration of joint

capabilities, and agile BOS combinations, Army forces bring enemies within their operational reach while protecting themselves.

**5-21. An operational pause is a deliberate halt taken to extend operational reach or prevent culmination.**

An operational pause may occur because the force has culminated, because the character of the operation has changed (by the intervention of another enemy, for example), or through a combination of other factors. If the situation requires an operational pause, the commander should designate a new main effort. Army forces coordinate operational pauses with other components so the joint force can maintain the initiative and momentum.

**5-22. Simultaneous and Sequential Operations.** The sequence of operations is closely related to the use of resources. ARFOR commanders synchronize subordinate unit actions in time, space, and effects to link the theater strategy and design of joint major operations to tactical execution. Without this linkage, major operations deteriorate into haphazard battles and engagements that waste resources without achieving decisive results.

5-23. When possible, Army forces conduct simultaneous operations throughout the AO. They seek to employ combat power against the entire enemy system. Army forces concurrently engage as many decisive points as possible. Simultaneity exploits depth and agility to overwhelm enemy forces. It threatens opponents with immediate consequences throughout the AO. The presence of multiple threats overloads enemy C2 systems. Enemy commanders confront many decisions within a very short period. The chance of a serious mistake is high, and each mistake creates opportunities for friendly forces.

5-24. Simultaneous operations place a premium on information superiority and overwhelming combat power. In practical terms, the force size and force projection constraints may limit the ability of Army forces to achieve simultaneity. Effective operational designs employ complementary and reinforcing joint and service capabilities to achieve maximum simultaneity.

5-25. Sequential operations achieve the end state by phases. Commanders concentrate combat power at successive points over time, achieving the mission in a controlled series of steps. Often the scale and scope of the campaign or major operation, together with the resiliency of the enemy, compel commanders to destroy and disrupt the enemy in stages, exposing the center of gravity step by step.

**5-26. Nonlinear and Linear Operations.** Nonlinear operations are now more common than ever. Stability operations and support operations are normally

nonlinear. Operation Just Cause and the last 36 hours of Operation Desert Storm featured large-scale nonlinear offensive operations. Ideally, a mobile defense transforms an enemy attack into a nonlinear operation that destroys him.

5-27. In *nonlinear operations*, maneuver units may operate in noncontiguous areas throughout the AO. Even when operating in contiguous AOs, maneuver forces may orient on objectives without geographic reference to adjacent forces. Nonlinear operations typically focus on multiple decisive points. Simultaneity overwhelms opposing C2 and retains the initiative. Nonlinear operations proceed along multiple lines of operations—geographic, logical, or both. LOCs often diverge from lines of operation, and sustaining operations may depend on CSS moving with maneuver units or delivered by air.

5-28. Smaller, lighter, more mobile, and more lethal forces sustained by efficient, distribution-based CSS systems lend themselves to simultaneous operations against multiple decisive points. Situational understanding, coupled with precision fires, frees commanders to maneuver against multiple objectives. Swift maneuver against several decisive points—supported by precise, concentrated fire—induces paralysis and shock among enemy troops and commanders.

5-29. In *linear operations*, maneuver units normally operate in contiguous AOs. Each combined arms force directs and sustains combat power toward enemy forces in concert with adjacent units. The ratio of forces to space and the array of maneuver forces emphasize geographic position and tend to create a continuous forward line of own troops (FLOT). This protects and simplifies LOCs. Protected LOCs, in turn, increase the endurance of Army forces and ensure freedom of action for extended periods.

5-30. A linear battlefield organization may be best for some operations or certain phases of an operation. Conditions that favor linear operations include those where US forces lack the information needed to conduct nonlinear operations or are severely outnumbered. Linear operations are also appropriate against a deeply arrayed, echeloned enemy force or when the threat to LOCs reduces friendly force freedom of action. In these circumstances, linear operations allow commanders to concentrate and synchronize combat power more easily. Coalition operations may also require a linear design.

5-31. Nonlinear and linear operations are not mutually exclusive. Depending upon perspective and echelon, operations often combine them. For example, a corps may employ its forces in noncontiguous areas, operating simultaneously against multiple decisive points. A brigade

combat team in the same corps operating within an urban area may employ units in a linear array.

**5-32. Tempo. Tempo is the rate of military action.**

Controlling or altering that rate is necessary to retain the initiative. Army forces adjust tempo to maximize friendly capabilities. Commanders consider the timing of the effects achieved rather than the chronological application of combat power or capabilities. Tempo has military significance only in relative terms. When the sustained friendly tempo exceeds the enemy's ability to react, friendly forces can maintain the initiative and have a marked advantage.

5-33. Commanders complement rapid tempo with three related concepts. First, operational design stresses simultaneous operations rather than a deliberate sequence of operations. Second, an operation may achieve rapid tempo by avoiding needless combat. This includes bypassing resistance that appears at times and places commanders do not consider decisive. Third, the design gives maximum latitude to independent action and initiative by subordinate commanders.

5-34. Army forces generally pay a price for rapid tempo through greater fatigue and resource expenditure. Commanders judge the capacity of their forces to operate at high tempo based on theater resources and deteriorating friendly performance. They design the operation for various tempos that take into account the endurance of the force.

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